REMARKS/DISCUSSION OF ISSUES

Applicant thanks the Examiner for acknowledging receipt of the claim for priority and all certified copies of priority documents; and for acknowledging acceptance of the drawings.

The Specification has been amended to replace the title with a more descriptive title of the invention.

Claims 1 and 3-9 are pending in the application. Claims 1 and 3-7 are rejected. Claim 7 is objected to. Claims 8 and 9 are added.

Claim 7 is objected to in that essential subject matter is contained within parentheses. Claim 7 has been amended to delete the parentheses. Accordingly, it is urged that the objection be withdrawn.

Claims 8 and 9 are added to cover the feature of the projecting plug being impermeable to light over part of its outer side, because it is achieved thereby that the electrical conductor extending from the cermet into the projecting plug is not in direct contact with filling ingredients inside the discharge vessel. See page 1, lines 20-23 of Applicant's specification. Claims 8 and 9 are identical, except for their dependency, on claims 1 and 7, respectively.

Claims 1 and 3-6 are rejected under 35 USC 103(a) as being unpatentable over Juengst (US 5,352,952) in view of Huettinger et al. (herein 'Huettinger').

Juengst discloses a high-pressure discharge lamp with a ceramic discharge vessel and a lead-through construction for the discharge vessel which includes ceramic end plugs 10 with a central bore 14, through which partially extends an Nb pin, rod or wire. In a preferred embodiment, the Nb pin, rod or wire

extends along about 80% of the length of the ceramic plug 10. See col. 5, lines 6-8.

Huettinger teaches a high pressure lamp with cermet in various parts thereof. In one embodiment, a cermet pin (9) is sintered to a capillary tube (20), which is in turn sintered to closing and sealing means (21). See Fig. 2.

The Examiner urges that it would be obvious to substitute the cermet pin 9 of Huettinger for the Nb pin of Juengst, since Heuttinger teaches that the thermal expansion match is closer than when the feed-through is metallic (col. 3, lines 5-10).

However, even if the cermet lead-through of Huettinger is substituted for the Nb lead-through of Juengst, the combination fails to suggest Applicant's claim 1, which calls for the lead-through to be sintered to a projecting plug, because Huettinger fails to provide any motivation to substitute his projecting plug 20 for the non-projecting plug 10 of Juengst. Compare, e.g., Fig. 2 of Huettinger with Fig. 2 of Juengst.

Moreover, while Juengst teaches a preferred embodiment in which Nb lead-through extends along about 80% of the length of the plug 10, this teaching applies to the joining of materials which Huettinger says have dissimilar coefficients of thermal expansion. If a cermet is substituted for the Nb lead-through, as urged by the Examiner, then the joined materials would have a closer match of thermal expansion coefficients, and the teaching of Juengst regarding the '80%' limitation would be discounted by the skilled artisan. As previously stated, Huettinger neither teaches nor suggests any such '80%' limitation.

Thus, even if Juengst and Huettinger were combined in the manner urged by the Examiner, they would fails to suggest the combination of a cermet lead-through and a projecting plug, and

would fail to suggest the '80%' limitation. Thus, the combination of references fails to render unpatentable the rejected claims, and it is urged that the rejection is in error and should be withdrawn.

Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Juengst in view of Huettinger and in further view of Pabst et al. (herein 'Pabst').

Pabst is cited to show a lead-through 10' having a tapered shape adjacent the end and provided with a narrowed portion, referring specifically to Fig. 3 of the reference.

However, as previously stated, the lead-through or plug 10' of Pabst et al. is not at all similar to the composite ceramic/cermet lead-through of Heuttinger, but rather is a single body of tungsten which is sealed directly to the outer wall of the discharge vessel 8'. A cermet plug was considered, but was rejected by Pabst as being expensive to manufacture and resulting in an unsatisfactory lamp lifetime. See col. 1, lines 51-56.

In contrast, Huettinger points out that the connection between ceramic and metal is not a secure bond, so that such a seal has a limited lifetime. See col. 1, lines 51-53. To overcome this problem, a combination of ceramic/cermet and cermet/metal seals are employed.

Thus, the teachings of the two references are in direct conflict, both as to structure and to materials employed, and the skilled practitioner would not be led to combine their teachings in the manner urged by the Examiner.

Moreover, Pabst teaches that the end portion of the pin 16 may be formed differently, for example, instead of being formed as a reduced portion, it could have grooves formed therein. See

col. 5, lines 9-11. Neither structure is urged as more desirable than the other.

Even if the tungsten plug with the reduced end portion of Pabst were substituted for the ceramic/cermet lead through of Huettinger, it would not result in the structure of claim 4, in which the cermet is sealed to a projecting plug, rather than being sealed directly to the wall of the ceramic discharge vessel, as in Pabst.

Accordingly, claim 4 is not obvious over the combination of Juengst and Huettinger and Pabst, and it is urged that the rejection is in error and should be withdrawn.

Claim 7 is rejected under 35 USC 103(a) as being unpatentable over Geijtenbeek et al. (US 6,147,453) (herein 'Geijtenbeek') in view of Huettinger.

Geijtenbeek discloses a metal halide lamp with a ceramic discharge vessel having projecting end plugs 34 and 35. Current lead-through conductors comprising metal portions 40,50 and a Mo-Al_2O_3 cermet portion 41,51, are sealed into the plugs 34,35 by means of a melting ceramic joint 10. The metal portion is typically Nb. The Mo-Al_2O_3 cermet portions 41,51 are not sintered directly to the projecting plugs 34,35, nor is there any mention of the composition of the cermet.

With respect to the cermet portions being sealed in rather than sintered to the projecting plug, the Examiner urges that Huettinger teaches that glass melts are subject to corrosion, while the use of cermet lead-throughs permits a tight bond by direct sintering.

Huettinger teaches that the cermet must have a metal content which is so high that it can be welded like a metal. Col. 2, lines 57,58. For this purpose, he teaches that the cermet must contain at least 40%, and preferably from 45%-75%,

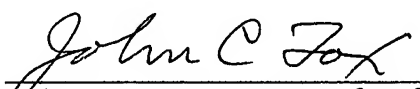
of metal. Col. 5, lines 59-61. Moreover, Heuttinger teaches that cermets having a lower metal content, e.g., 30% tungsten, or a correspondingly higher proportion of molybdenum are non-conductive and non-weldable. Col. 5, lines 36-41.

In contrast, Applicant' claim 7 calls for the cermet portion of the lead-through to have a composition containing molybdenum in the amount of 30% by volume.

In view of the fact that Huettinger clearly teaches that a cermet of the claimed composition would be non-conductive and non-weldable, and therefore unsuitable for use as a lead-through, it would not be obvious to the skilled artisan to use a cermet of the claimed composition in the lead-through portions 41,51 of Geijtenbeek, particularly if portions 41, 51 were to be sintered directly to end plugs 34,35. In fact, in teaching that much higher metal contents are needed for sintering, Huettinger actually leads away from the claimed invention.

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the rejections of record, allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,



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